

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of: )  
**Aigner et al.** )  
 )  
MMB Docket No. **1890-0076** ) Examiner: **Barbara Summons**  
 )  
Application No. **10/821,116** ) Group Art Unit: **2817**  
 )  
Filed: **April 8, 2004** )  
 )  
For: **BAW Resonator Having** )  
**Piezoelectric Layers Oriented in** )  
**Opposed Directions** )

I hereby certify that this correspondence is being deposited  
with the United States Postal Service as first class mail in  
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April 14, 2005

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Harold C. Moore

Name of person mailing Document or fee

Signature

April 14, 2005

Date of Signature

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 CFR §1.56, Applicants hereby disclose the following reference  
regarding the above-identified patent application. A copy of any foreign references are  
enclosed.

Patent References

U.S. Patent No.  
3,590,287

Inventor  
Berlincourt et al.

Issue Date  
Jun. 29, 1971

Foreign References

EP 1 047 189 A2  
EP 0 802 628 A2  
EP 0 609 555 A2  
JP 2001185984 A

Publication Date  
Oct. 25, 2000  
Oct. 22, 1997  
Aug. 10, 1994  
July 6, 2001

Country Code  
Europe  
Europe  
Europe  
Japan

**Articles**

- 1) Lakin et al., "Stacked Crystal Filters Implemented with Thin Films", 43rd Annual Symposium on Frequency Control, 1989, (8 pages).
- 2) Ruffner et al., "Effect of Substrate Composition on the Piezoelectric Response of Reactively Sputtered AlN Thin Films", Thin Solid Films 354, 1999, (6 pages).
- 3) Chen et al., "High-frequency Resonance in Acoustic Superlattice of Periodically Poled LiTaO<sub>3</sub>", Appl. Phys. Lett. 70(5), Feb. 1997, (3 pages).
- 4) Hayashi et al., "Lead Titanate Ceramics for High Frequency Resonator", Proc. of the 2000 12th IEEE Symposium on Applications of Ferroelectrics, vol. 1, S., (4 pages).
- 5) Kawasaki et al., "Variable Property Crystal Resonators by Direct Bonding Techniques", IEEE Ultrasonics Symposium, 1996, (4 pages).
- 6) Lakin et al., "Development of Miniature Filters for Wireless Applications", IEEE Transactions on Microwave Theory and Techniques, Vol. 43, No. 12, 1995, (3 pages).

The above articles, U.S. Patent No. 3,590,287, and JP 2001185984 A were cited in a German Examination Procedure of the German priority application DE 101 49 542.0 filed on October 8, 2001. EP 1 047 189 A2, EP 0 802 628 A2, and EP 0 609 555 A2 were cited in an International Preliminary Examination Report (copy enclosed) and/or an International Search Report (copy enclosed) for corresponding application PCT EP/2002/007700 filed on July 10, 2002.

Pursuant to 37 C.F.R. § 1.97(b), this Information Disclosure Statement is being filed within three months after the filing date of the application or before the mailing of the first office action on the merits.

It is believed that no fees are due for the consideration of this Information Disclosure Statement. However, the Commissioner is hereby authorized to charge any deficiency or to credit any overpayment to Deposit Account No. 13-0014, but not to include any payment of issue fees.

Respectfully Submitted,



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FORM PTO-1449 <u>INFORMATION DISCLOSURE STATEMENT</u>	MMB DOCKET NO. 1890-0076	APPLICATION NO.: 10/821,116
	APPLICANT(S): Aigner et al.	
	FILING DATE: April 8, 2004	GROUP ART UNIT: 2817

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA	3,590,287	Jun. 29, 1971	Berlincourt et al.			
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL	EP1047189A2	Oct. 25, 2000	Europe			Yes No
	AM	EP0802628A2	Oct. 22, 1997	Europe			Yes No
	AN	EP0609555A2	Aug. 10, 1994	Europe			Yes No
	AO	JP2001185984A	Jul. 6, 2001	Japan			Yes No
	AP						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AQ		Lakin et al., "Stacked Crystal Filters Implemented with Thin Films", 43rd Annual Symposium on Frequency Control, 1989, pages 536-543.
	AR		Ruffner et al., "Effect of Substrate Composition on the Piezoelectric Response of Reactively Sputtered AlN Thin Films", Thin Solid Films 354, 1999, pages 256-261.
	AS		Chen et al., "High-frequency Resonance in Acoustic Superlattice of Periodically Poled LiTaO <sub>3</sub> ", Appl. Phys. Lett. 70(5), Feb. 1997, pages 592-594.

EXAMINER	DATE CONSIDERED
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicants.

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	BA						
	BB						
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	BD						
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	BF						
	BG						
	BH						
	BI						
	BJ						
	BK						

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	BL						Yes No
	BM						Yes No
	BN						Yes No
	BO						Yes No
	BP						Yes No

### OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	BQ		Hayashi et al., "Lead Titanate Ceramics for High Frequency Resonator", Proc. of the 2000 12th IEEE Symposium on Applications of Ferroelectrics, vol. 1, S., pages 289-292.
	BR		Kawasaki et al., "Variable Property Crystal Resonators by Direct Bonding Techniques", IEEE Ultrasonics Symposium, 1996, pages 897-900.
	BS		Lakin et al., "Development of Miniature Filters for Wireless Applications", IEEE Transactions on Microwave Theory and Techniques, Vol. 43, No. 12, 1995, pages 2933-2935.

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